

REMARKS

The specification has been amended in order to improve its form and to provide a little more definite antecedent basis for the subject matter claimed in claim 19 of this application (see the addition to page 2, line 14 of the specification).

Claim 17 was amended in order to better define the invention.

Claims 21-23 were added in order to provide applicants with protection commensurate in scope with the invention disclosed.

Claims 18-20 were rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement of that statute.

Turning first to the claimed subject matter of claim 18 of this application, the specification states in the paragraph bridging pages 1-2 of the specification that in the prior art mentioned in the prior paragraph the oscillation frequency is determined by the inductors inductance and the FET gate and drain junctions capacitances. It further states that the oscillation frequency is determined by technologically dependent parameters such as the FET drain and gate capacitances and as a direct consequence the oscillation frequency is technology dependent as well. In the Summary of the Invention at page 2, lines 12-14, it is an object of the invention to provide an oscillator with an increased coupling coefficient and whose oscillation frequency is determined

independently of the fabrication technology. And in the last paragraph on page 2 of the specification, applicants further state that in a preferred embodiment of the invention the LC resonators have L and C components which have their inductance and capacitance much bigger than any other parasitic inductance and capacitance in the circuit and, as a matter of consequence, the oscillation frequency is determined independently of the technology.

From the foregoing, it would be clear to a person of ordinary skill in the relevant art that it would be advantageous for each resonator of the oscillator to comprise an LC circuit where "the inductor and capacitor thereof are chosen so that any parasitic inductance or capacitance of the oscillator have negligible effect on the oscillation frequency of the oscillator", as claimed in claim 18. The specification therefore provides antecedent support for the subject matter being claimed in claim 18 of this application.

The same material in the specification provides antecedent support for the novel subject matter of claim 19. See especially page 2, lines 27-30 of the specification, i.e. L and C components have their inductance and capacitance much bigger than any other parasitic inductance and capacitance in the circuit and, as a matter of consequence, the oscillation frequency is determined independently of the technology. Claim 19 therefore finds adequate antecedent support in the specification of this application.

As to claim 20, Figs. 1 and 3 of the drawings clearly show the

coupling and cross-coupling between the first and second circuit modules to be simple wire connections which are clearly fixed, that is not subject to any control which will vary such coupling. This is in sharp contrast to the variable coupling of the Liu patent, USP 6,188,292.

Applicants therefore respectfully request reconsideration and withdrawal of the rejection of claims 18-20 under 35 USC 112, first paragraph.

Claims 1, 2, 4, 5, 12, 13, 16 and 17 were rejected under 35 USC 102(e) as being anticipated by Liu (USP 6,188,292).

Applicants again submit that the Office Action does not present sufficient factual evidence to support a prima facie case of anticipation as to the aforesaid claims under 35 USC 102.

Applicants again request specific factual evidence that Liu discloses a quadrature coupled oscillator since no obvious mention is made of such an oscillator in the cited columns 3-5 of the applied reference.

It also is not clear as to exactly which specific elements in Liu allegedly make up the claimed voltage controlled current source (VCCS). Please note that the stages 210, 212 of the reference are identified as coupling modules and are not a part of either oscillator 1 or oscillator 2, nor are they described as a voltage controlled current source.

The Office Action argues that, inherently, the oscillators and

transconductance stages (210, 212) allow for the phase shifting of the current supplied by the respective stages (210, 212), and form part of the VCCS for each oscillator along with input terminal 350. The issue is not whether or not the Liu apparatus inherently allow for phase shifting, because even if it does, the issue is whether it does so in the particular manner claimed in claims 1 and 12 of this application.

For example, the Office Action does not factually show that the Liu device includes the subject matter in the last paragraph in claim 1, e.g. the phase shifters coupled to respective voltage controlled current source circuits and which shift the phase of a current supplied by the VCCS to the resonator etc. Also see the penultimate paragraph of claim 12.

Applicants again refer the Patent and Trademark Office to the requirements of 35 USC 132.

The Office Action of 9/24/03 does not provide the factual support required for a valid prima facie case of anticipation of claims 1 and 12 under 35 USC 102.

As to claim 2, the abstract of Liu clearly discloses a "first and a second fixed frequency oscillator coupled in a ring topology", whereas claim 2 calls for means for controlling the oscillation frequency of the astable multivibrator circuits etc. In Liu, a frequency variation is achieved by varying the coupling between the two oscillators (see the Liu abstract), which is not the same thing

as controlling the oscillation frequency of astable multivibrator circuits etc. Claim 2 is not anticipated by Liu because the Office Action does not set out the factual evidence requisite for a prima facie case of anticipation. If the Patent and Trademark Office persists in this ground of rejection, then the next Office Action should specifically cite those parts of any applied reference that allegedly disclose such subject matter.

Claim 13 is patentable in view of the claimed means for controlling the oscillation frequency of the oscillator by control of the resonant frequency of the resonator etc. Liu does not control the oscillation frequency of the oscillator by control of the resonator resonant frequency, but rather by varying the coupling between the two oscillators.

The Office Action does not present a prima facie case of anticipation as to claim 13.

Claim 4 calls for a resonator including a discrete capacitor, whereas the Office Action admits that it relies on "the active circuit capacitance" of Liu, not a discrete capacitor.

Claim 4 is patentable over Liu as a matter of law since the Office Action admits that this reference does not disclose the discrete capacitor of claim 4 and so it does not set out the factual support requisite to valid prima facie case of anticipation.

As to claim 5, the Patent and Trademark Office alleges that Liu discloses mutual inductive LC circuits made up of L1, 2, L3, 4 and

that the inductive loading in each oscillator allow for the coupling due to the close proximity of the inductive elements. If the inductors L1, L2 and L3, L4 of the reference were inductively coupled, the patent would mention this fact, or at least indicate same in the drawing in a manner similar to that in Fig. 4 of the drawing in this application. Absent such, the aforesaid inductors in Liu are not mutually inductively coupled as claimed in claim 5 of this application and so the Office Action does not make out a prima facie case of anticipation since it is devoid of the requisite factual support. As before, if the Patent and Trademark Office persists in its rejection, then the next Office Action should specifically cite those portions of any applied reference that disclose the aforesaid subject matter.

Claim 16 requires that the control of the resonator resonant frequency controls the oscillation frequency of its respective oscillation circuit, which is not true of the Liu device. In Liu, the oscillators 202 and 204 are both fixed frequency oscillators and the oscillation frequency is controlled by varying the coupling therebetween (see column 2, lines 28-38 of Liu), not by the control of the resonator resonant frequency, as recited in claim 16.

The Office Action does not present a prima facie case of anticipation as to claim 16.

Claim 17 was amended above so that it is similar to allowed claim 11, wherefore it too should now be in condition for allowance.

Claims 18-20 were not rejected on any prior art and so it is believed that these claims are allowable since it has been shown above that they are in compliance with 35 USC 112, first paragraph.

Claims 21-23 are patentable for the general reasons advanced above as well as for other novel features recited therein. Claim 21, dependent on claim 12, includes subject matter similar to allowed claim 3 and so it too should be allowable.

Claim 22 calls for control of the oscillation frequency of the astable multivibrator independently of the coupling between the first and second circuit modules thereby to control the oscillation frequency of the oscillator. In Liu, the oscillator oscillation frequency is controlled by control of the coupling between the two oscillator circuits, and therefore not independently thereof, as claimed in claim 22. Claim 23 contains novel subject matter similar to claim 22, but is dependent on claim 12 instead of claim 1. Claim 23 is patentable similarly to claim 22.

In view of the incomplete nature of the Office Action, as discussed above, the next Office Action in this application should not be made final.

Please charge the cost of any additional fees in connection with the above amendment to Deposit Account No. 14-1270.

Reexamination and allowance of the application are respectfully requested.

Respectfully submitted,

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